Myths, Urban Legends and Peds

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Disclosures

- None

Goals

- Fevers – when should we worry
- Seizures – do we always need versed??
- Age of consent… not so simple
- Intubation vs. BVM – what is most important
- A challenging case

Fever

Patient 1

- 13 day old with no symptoms
- 101° temp rectally
- Awake, alert, crying, consolable
- well hydrated, exam unremarkable. No rash

Patient 2

- 4 year old with cough
- 105.2 temp rectally
- Sleeping but easily awaken, crying, consolable
- Mucous membranes tacky, pulse 160, SATs 100% ra.

Fever

- Why do we care??
  - Parents hate fevers
  - Nurses hate fevers
  - Feel miserable
  - “dangerous”
  - “brain damage”
  - Seizures
  - Parents and nurses REALLY hate fevers…

Fever

- But…
  - Part of the immune response
  - Fights infection
  - Helps WBCs do their job
- What to do?
  - Lets look at fevers more objectively

Fever

- Why we SHOULD care
  - Some fevers ARE dangerous
    - 107.6 = protein denatures
    - Immunocompromised
      - Chemotherapy
      - Neutropenic
    - Age related
  - Fevers can signal serious disease
    - Height of fever not so important, CAUSE is

Fever

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Patient 2

- 4 year old with cough
- 105.2 temp rectally
- Sleeping but easily awaken, crying, consolable
- Mucous membranes tacky, pulse 160, SATs 100% ra.

So which is most concerning??

Febrile infant

- 13 day old with no symptoms
- 101° temp rectally
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So how come?

Febrile Infants

- High risk patients!!!
- Babies less than a month with fever ALWAYS require evaluation
- 1-2 months – a little discretion…

Febrile Infants – 2 months or less

- Temp = 100.4 F (38.0 C) rectally
  - Axillary reads lower!
  - Tympanic…. NO!
- Exam is unreliable
  - May have a normal exam with a very sick kid
  - Not fully developed neurologically
  - Kids compensate…

Febrile Infants – 2 months or less

- Important history
  - Ill contacts
  - Prematurity
    - Are they even born yet???
  - Problems with pregnancy
- Important exam findings
  - May be subtle
  - Poor feeding, irritable, inconsolable
  - Lethargy, dehydration (skin turgor, mucous membranes) poor tone, decreased activity usually easier to spot

Febrile Infants – 2 months or less

- What to do…
  - Transport all febrile kids in this age group
  - In the ED
    - Urine, chest, blood, CSF
  - Antibiotics
  - Admission
  - Period (almost…)!

Fever – 2nd Month of Life

- A little less clear cut
- Exceptions for the LP
  - RSV
- Exact age = gray area
- Various clinical tools
- Most community ED docs very conservative until 6-8 weeks or so

Fever – older kids

- 4 year old with cough
- 105.2 temp rectally
- Sleeping but easily awaken, crying, consolable
- Mucous membranes tacky, pulse 160, SATs 100% ra.

Anything concerning?

Fever – older kids

- “only” a viral illness, BUT
- Dehydration is still a major cause of morbidity
  - Pulse
  - Mucous membranes
  - Fluid intake/output
  - Exam
- It’s not the fever, it’s the cause

Appropriate treatment

- Tylenol/Motrin
  - Neither have any role in treating the underlying problem. Period…
  - Antipyretics do not prevent febrile seizures
  - They DO make you feel better sometimes
  - My rules:
    - If I can't catch my kids to give them the Tylenol/Motrin, they don't need it.
    - Make sure it isn't meningitis, appendicitis or something bad…

Summary

- “Fevers” do not cause brain damage
- Febrile seizures do happen but there is no reliable way to prevent them
- The main concern is what is causing the fever
- The exception are high risk patients
  - Less than 2 months
  - Immunocompromised
- Reassurance is an important part of the evaluation

Next case…

4 year old female who is otherwise healthy, goes to preschool, up to date on immunizations. Was well this morning, felt hot in the afternoon, mom goes to get Tylenol but before she gives it the child has a 90 second tonic-clonic seizure. On EMS arrival 2 minutes later the child is not responding, breathing easily, SATs are good, hot to the touch.

So???

Febrile seizures

- Treatment
  - Immediate IM versed followed by IV versed just in case???
  - NO!!!
  - Treat underlying illness as needed
- Implications
  - A simple febrile seizure means nothing more than a fever

Seizures – less concerning

- Simple febrile seizure
  - Age 6 months to 5 years.
  - The single seizure is generalized and lasts less than 15 minutes.
  - The child is otherwise neurologically healthy and without neurological abnormality by examination or by developmental history.
  - Fever (and seizure) is not caused by meningitis, encephalitis, or other illness affecting the brain.

Seizure - concerning

- Complex Febrile seizure
  - More than 1 in 24 hours
  - Longer than 15 minutes
  - Focal
- Status epilepticus (any cause)
  - Seizure longer than 30 minutes
    - 10 minutes gets my attention…

Appropriate treatment

- Check that glucose!
- Careful observation if not seizing, post ictal
- Active seizing
  - Protect patient
  - WAIT! Especially if febrile – They usually stop
  - No need to rush the benzos…

Appropriate treatment

- Benzos (Versed, Ativan)
  - OK if prolonged seizure (5-10 minutes?)
  - Febrile seizure DO NOT require benzos
  - Down side?
    - Respiratory depression
      - Intubation
      - Admission
    - Unable to assess mental status
      - Admission
    - IM followed by IM followed by IV….
      - CAREFUL….
        - Onset IM versed 7-30 minutes
        - Peak levels 30-60 minutes

Risk Factors for Apnea in Pediatric Patients Transported by Paramedics for Out-of-Hospital Seizure

Nichole Bosson, MD, MPH; Genevieve Santillanes, MD; Amy H. Kaji, MD, PhD; Andrea Fang, MD; Tasha Fernando, BS; Margaret Huang, MD; Jumie Lee, CPNP, MSN; Marianne Gausche-Hill, MD

Study objective: Apnea is a known complication of pediatric seizures, but patient factors that predispose children are unclear. We seek to quantify the risk of apnea attributable to midazolam and identify additional risk factors for apnea in children transported by paramedics for out-of-hospital seizure.

Methods: This is a 2-year retrospective study of pediatric patients transported by paramedics to 2 tertiary care centers. Patients were younger than 15 years and transported by paramedics to the pediatric emergency department (ED) for seizure. Patients with trauma and those with another pediatric ED diagnosis were excluded. Investigators abstracted charts for patient characteristics and predefined risk factors: developmental delay, treatment with antiepileptic medications, and seizure on pediatric ED arrival. Primary outcome was apnea defined as bag-mask ventilation or intubation for apnea by paramedics or by pediatric ED staff within 30 minutes of arrival.

Results: There were 1,584 patients who met inclusion criteria, with a median age of 2.3 years (Interquartile range 1.4 to 5.2 years). Paramedics treated 214 patients (13%) with midazolam. Seventy-one patients had apnea (4.5%): 44 patients were treated with midazolam and 27 patients were not treated with midazolam. After simultaneous evaluation of midazolam administration, age, fever, developmental delay, antiepileptic medication use, and seizure on pediatric ED arrival, 2 independent risk factors for apnea were identified: persistent seizure on arrival (odds ratio [OR]=15; 95% confidence interval [CI] 8 to 27) and administration of field midazolam (OR=4; 95% CI 2 to 7).

Conclusion: We identified 2 risk factors for apnea in children transported for seizure: seizure on arrival to the pediatric ED and out-of-hospital administration of midazolam. [Ann Emerg Med. 2014;63:302-308.]

Please see page 303 for the Editor's Capsule Summary of this article.

0196-0644/$-see front matter

http://dx.doi.org/10.1016/j.annemergmed.2013.09.015

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Diagnosis??

Diagnosis?

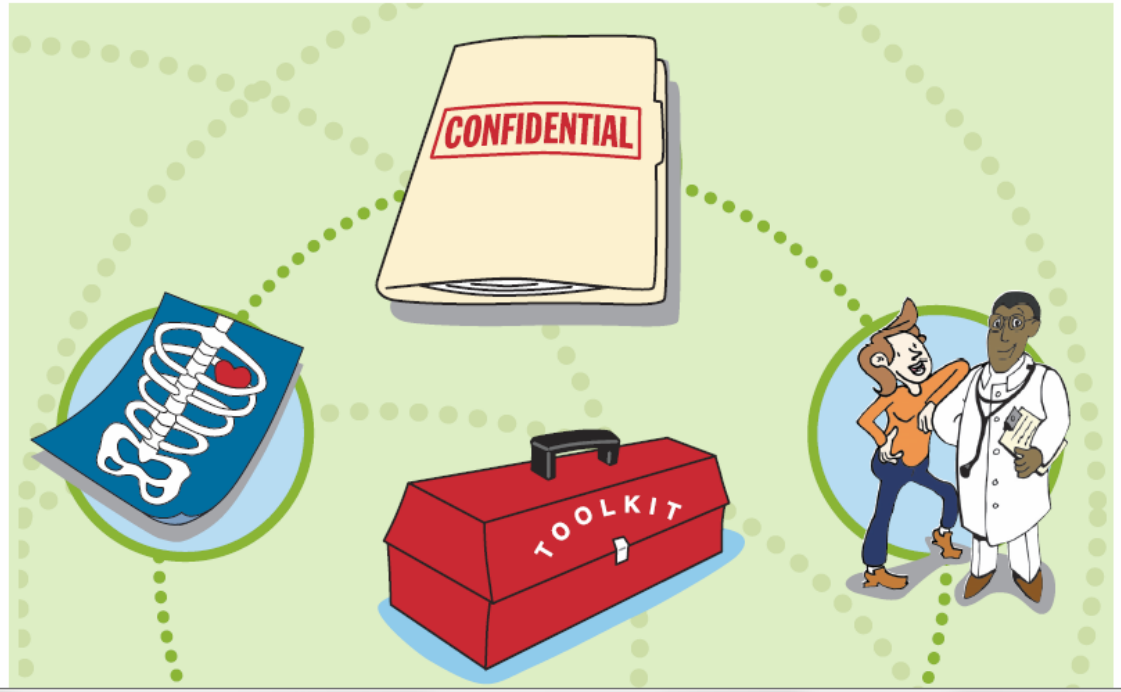
- Flamin' Hot Cheetos Sign, AKA, Hot Taki sign…
- Usually accompanies a complaint that requires NPO status…
- And… actual ED visits for "blood in poop"

Let's change gears…

You are called to a residence where you find a 12 year old female complaining of abdominal pain. There are no parents home but there is a 15 year old sister there. Your exam is unremarkable. The abdomen is soft, the vital signs are stable and the patient appears in only mild distress. The patient says she wants a ride to the hospital. You ask about her parents and she says she doesn't want them called. Then she adds, "by the way, I'm pregnant." What do you do?

UNDERSTANDING CONFIDENTIALITY AND MINOR CONSENT IN CALIFORNIA

An Adolescent Provider Toolkit



HOW TO OBTAIN A COPY OF THIS TOOLKIT MODULE

This module along with sample polices and handouts in Spanish and Chinese can be downloaded for free from the following websites:
Adolescent Health Working Group (AHWG) – www.ahwg.net
California Adolescent Health Collaborative (CAHC) – www.californiateenhealth.org

ADOLESCENT HEALTH WORKING GROUP

The Adolescent Health Working Group (AHWG) was formed in 1996 by a group of adolescent health providers and youth advocates concerned about the lack of age-appropriate health services in the city of San Francisco. Today, the AHWG remains the only group if its kind in San Francisco. The AHWG's vision is that all youth have unimpeded access to high quality, culturally competent, youth friendly health services. The AHWG's mission is to support and strengthen the network of providers working to improve adolescent health. The AHWG's works to fulfill its vision and mission through the following core functions: 1) develop tools and trainings that increase providers' capacity to effectively serve youth, 2) advocate for policies that increase access to health insurance and comprehensive care, 3) convene stakeholders and coordinate linkages across systems to improve information sharing, networking and referral for youth services.

CALIFORNIA ADOLESCENT HEALTH COLLABORATIVE

California Adolescent Health Collaborative (CAHC), a project of The Public Health Institute, is a public-private statewide collaborative with the goal of increasing understanding and support for adolescent health and wellness in California. CAHC's vision is that adolescents and young adults from all California communities are living healthy lives and pursuing positive life options with resources, support, and opportunities from families, communities, schools, and service systems. Core functions include: 1) curriculum development, training, and technical assistance to strengthen the capacity of providers and systems; 2) publications to increase awareness of providers and policymakers and improve policy and practice; 3) advocacy to keep the health and well being of adolescents central to public debate and decision-making; and 4) collaborative development to strengthen partnerships between different disciplines through a common commitment to adolescent health.

SUGGESTED CITATION

Second edition: Duplessis V, Goldstein S and Newlan S, (2010) *Understanding Confidentiality and Minor Consent in California: A Module of Adolescent Provider Toolkit. Adolescent Health Working Group, California Adolescent Health Collaborative.*

QUESTIONS ON TRAININGS

Contact CAHC: training@californiateenhealth.org
AHWG: info@ahwg.net

Minor Consent in California

CALIFORNIA MINOR CONSENT AND CONFIDENTIALITY LAWS*

MINORS OF ANY AGE MAY CONSENT	LAW/DETAILS	MAY/MUST THE HEALTH CARE PROVIDER INFORM A PARENT ABOUT THIS CARE OR DISCLOSE RELATED MEDICAL INFORMATION TO THEM?
PREGNANCY	"A minor may consent to medical care related to the prevention or treatment of pregnancy," except sterilization. (Cal. Family Code § 6925).	The health care provider is not permitted to inform a parent or legal guardian without the minor's consent. The provider can only share the minor's medical information with them with a signed authorization from the minor. (Cal. Health & Safety Code §§ 123110(a), 123115(a)(1); Cal. Civ. Code §§ 56.10, 56.11).
CONTRACEPTION	A minor may receive birth control without parental consent. (Cal. Family Code § 6925).	
ABORTION	A minor may consent to an abortion without parental consent. (Cal. Family Code § 6925; *American Academy of Pediatrics v. Lungren,* 16 Cal.4th 307 (1997)).	The health care provider is not permitted to inform a parent or legal guardian without the minor's consent. The provider can only share the minor's medical information with them with a signed authorization from the minor. (*American Academy of Pediatrics v. Lungren,* 16 Cal.4th 307 (1997); Cal. Health & Safety Code §§ 123110(a), 123115(a)(1); Cal. Civ. Code §§ 56.10, 56.11).

Minor Consent in California

MINORS 12 YEARS OF AGE OR OLDER MAY CONSENT	LAW/DETAILS	MAY/MUST THE HEALTH CARE PROVIDER INFORM A PARENT ABOUT THIS CARE OR DISCLOSE RELATED MEDICAL INFORMATION TO THEM?
INFECTIOUS, CONTAGIOUS COMMUNICABLE DISEASES (DIAGNOSIS, TREATMENT)	"A minor who is 12 years of age or older and who may have come into contact with an infectious, contagious, or communicable disease may consent to medical care related to the diagnosis or treatment of the disease, if the disease… is one that is required by law…to be reported…." (Cal. Family Code § 6926).	The health care provider is not permitted to inform a parent or legal guardian without the minor's consent. The provider can only share the minor's medical information with them with a signed authorization from the minor. (Cal. Health & Safety Code §§ 123110(a), 123115(a)(1); Cal. Civ. Code §§ 56.10, 56.11).
SEXUALLY TRANSMITTED DISEASES (PREVENTIVE CARE, DIAGNOSIS, TREATMENT)	A minor 12 years of age or older who may have come into contact with a sexually transmitted disease may consent to medical care related to the prevention, diagnosis or treatment of the disease. (Cal. Family Code § 6926).	

Minor Consent in California

MINORS 12 YEARS OF AGE OR OLDER MAY CONSENT	LAW/DETAILS	MAY/MUST THE HEALTH CARE PROVIDER INFORM A PARENT ABOUT THIS CARE OR DISCLOSE RELATED MEDICAL INFORMATION TO THEM?
AIDS/HIV TESTING AND TREATMENT	A minor 12 and older is competent to give written consent for an HIV test. (Cal. Health and Safety Code § 121020). A minor 12 and older may consent to medical car related to the prevention, diagnosis and treatment of HIV/AIDS. (Cal. Family Code § 6926).	The health care provider is not permitted to inform a parent or legal guardian without the minor's consent. The provider can only share the minor's medical information with them with a signed authorization from the minor. (Cal. Health & Safety Code §§ 123110(a), 123115(a)(1); Cal. Civ. Code §§ 56.10, 56.11).

Minor Consent in California

MINORS OF ANY AGE MAY CONSENT	LAW/DETAILS	MAY/MUST THE HEALTH CARE PROVIDER INFORM A PARENT ABOUT THIS CARE OR DISCLOSE RELATED MEDICAL INFORMATION TO THEM?
EMERGENCY MEDICAL SERVICES* *An emergency is *"a situation . . . requiring immediate services for alleviation of severe pain or immediate diagnosis of unforeseeable medical conditions, which, if not immediately diagnosed and treated, would lead to serious disability or death"* (Cal. Code Bus. & Prof. § 2397(c)(2)).	A provider shall not be liable for performing a procedure on a minor if the provider "reasonably believed that [the] procedure should be undertaken immediately and that there was insufficient time to obtain [parental] informed consent." (Cal. Bus. & Prof. Code § 2397).	The parent or guardian usually has a right to inspect the minor's records. (Cal. Health & Safety Code §§ 123110(a); Cal. Civ. Code § 56.10. *But see exception at endnote ([EXC.])).*

Know the rules…

- It is important that we know the rules in California.
- Some issues have no age of consent
  - Pregnancy
  - Contraception
  - Abortion
- Some issues age of consent is 12 years
  - Rape services
  - Infectious diseases
  - HIV/STD prevention, testing and treatment
  - Drug and alcohol treatment

Know the rules…

- This doesn't mean you CAN'T talk to parents, it means you have to have permission…

Back to our patient

- What ABOUT a pregnant 12 year old?
  - Should we report it?
  - Rape? Child abuse?
  - Maybe….

CPS mandated reporting – sexual partners

2. BASED ON AGE DIFFERENCE BETWEEN PARTNER AND PATIENT IN A FEW SITUATIONS

Mandated reporters also must report based on the age difference between the patient and his or her partner in a few circumstances, according to the following chart:

KEY: M = *Mandated. A report is mandated based solely on age difference between partner and patient.*

CJ = *Clinical Judgment. A report is not mandated based solely on age; however, a reporter must use clinical judgment and must report if he or she has a reasonable suspicion that act was coerced, as described above.*

Age of Partner ⇒ / Age of Patient ⇓	12	13	14	15	16	17	18	19	20	21	22 and older
11	CJ	CJ	M	M	M	M	M	M	M	M	M ⇒
12	CJ	CJ	M	M	M	M	M	M	M	M	M ⇒
13	CJ	CJ	M	M	M	M	M	M	M	M	M ⇒
14	M	M	CJ	CJ	CJ	CJ	CJ	CJ	CJ	M	M ⇒
15	M	M	CJ	CJ	CJ	CJ	CJ	CJ	CJ	M	M ⇒
16	M	M	CJ	CJ	CJ	CJ	CJ	CJ	CJ	CJ	CJ
17	M	M	CJ	CJ	CJ	CJ	CJ	CJ	CJ	CJ	CJ
18	M	M	CJ	CJ	CJ	CJ					
19	M	M	CJ	CJ	CJ	CJ					
20	M	M	CJ	CJ	CJ	CJ					
21 and older	M	M	M	M	CJ	CJ					

Chart design by David Knopf, LCSW, UCSF.

(*The legal sources for this chart are as follows*: Penal Code §§ 11165.1; 261.5; 261; 259 Cal. Rptr. 762, 769 (3rd Dist. Ct. App. 1989); 226 Cal. Rptr. 361, 381 (1st Dist. Ct. App. 1986); 73 Cal. Rptr. 2d 331, 333 (1st Dist. Ct. App. 1998).

Really?

- This is a complex issue
- There are valid issues on both sides of the discussion
- As health care providers we are required to know the rules
- Use law enforcement, your medical director, bioethics committee, attorney – whatever resources you may have available
- Keep the patient's best interest as you primary goal

Another patient…

- 3 year old found in a pool. Bystander CPR in progress on EMS arrival. Child is pulseless and apneic. Good compressions are being performed. There are no other issues to consider.
- So what about the airway??

Another patient…

- Not really a myth but 2 big points to consider
- Options
  - BVM
  - Endotracheal intubation

Another patient…

- Not really a myth but 2 big points to consider
- Options
  - BVM
  - Endotracheal intubation
- Points to consider
  - Does it help?
  - Is it safe?

Another patient…

BVM

- Does it work?
  - Yes
- Is it safe
  - Yes, if done correctly

Intubation

- Does it work?
  - Yes
- Is it safe?
  - Yes, if done correctly

Another patient…

- There is no right answer, but consider these points
  - BVM is equal to endotracheal intubation for ventilation/oxygenation.
  - Do not feel obliged to intubate at all costs…
  - The WORST possibility is an undetected esophageal intubation….

Another patient…

- Intubation
  - If you do intubate there are 2 critical considerations
    - $ETCO_2$ monitoring
      - Even with a good intubation, displacement is more frequent in pediatric patients
      - Continuous wave form $ETCO_2$ monitoring must be preformed
    - NG tube
      - Very important
      - Abdominal distension can increase intrathoracic pressure
      - This can markedly decrease blood return to the heart

Another patient…

- Summary
  - Intubation and BVM are effective, acceptable methods to manage a pediatric airway
  - First do no harm….

Thank you!

Questions?

A challenge

- An 11 year old boy is playing in the front yard. He hears the ice cream man. He starts running to the truck, then suddenly cries out. He come back to the house saying his legs hurt. He appears in severe pain. Paramedics are called

A challenge

Questions?

A challenge

- Recently diagnosed with leukemia. Undergoing treatment. Has been doing well. No recent symptoms or complaints. He had a checkup recently. Labs, xrays and an echocardiogram were done.
- Exam: very uncomfortable, BP 70/40, HR 120's, lungs clear, afebrile. Able to move legs. Will not lay on back – he says he feels better on his stomach. Awake and alert but pail.
- more questions?

A challenge

- Leg exam: initially, slightly cool to touch bilaterally. Pulses present but weak. Can move legs but doesn't want to as it hurts.

A challenge

- Reassessment: BP lower after multiple fluid boluses, more uncomfortable. Now complains of abdominal pain. Legs now mottled and cooler to the touch.
- Hgb is normal. Rectal exam is positive for blood. MRI of back is negative. Patient looking worse.
- What about that ECHO?

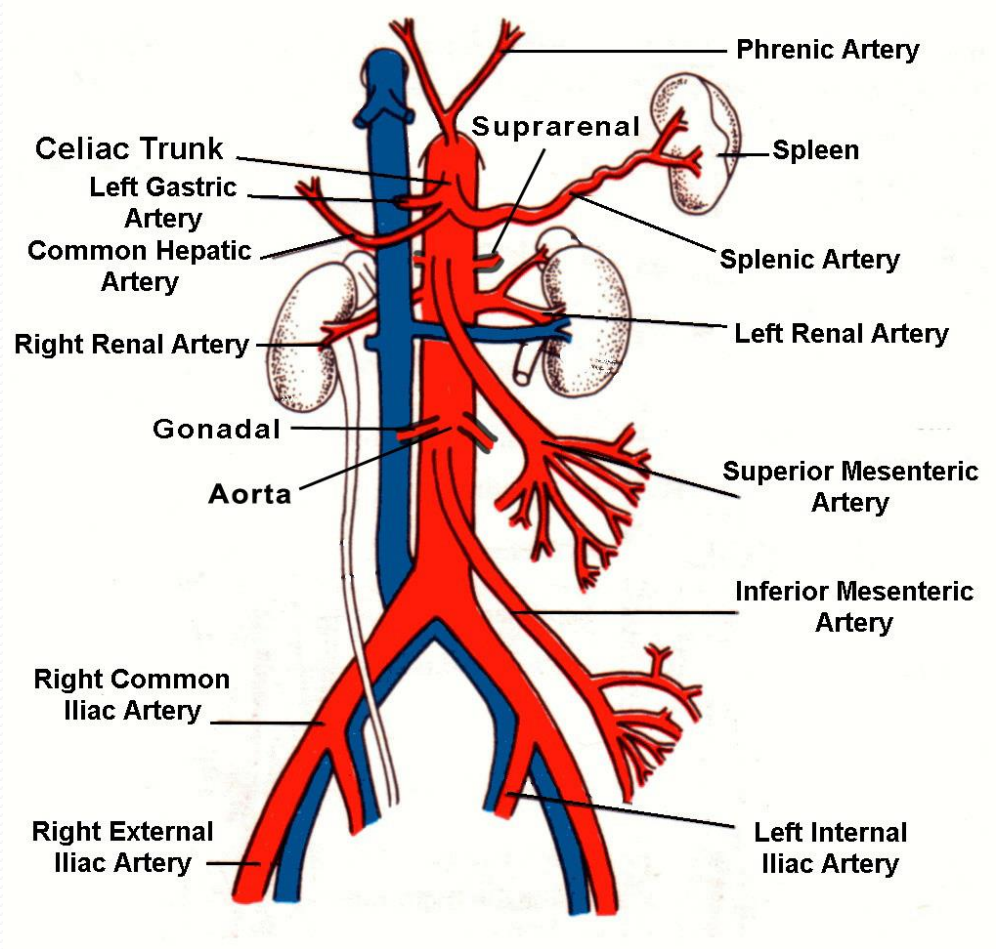
A challenge

- Reassessment: BP lower after multiple fluid boluses, more uncomfortable. Now complains of abdominal pain. Legs now mottled and cooler to the touch.
- Hgb is normal. Rectal exam is positive for blood. MRI of back is negative. Patient looking worse.
- What about that ECHO?
  - A blood clot in his left ventricle…

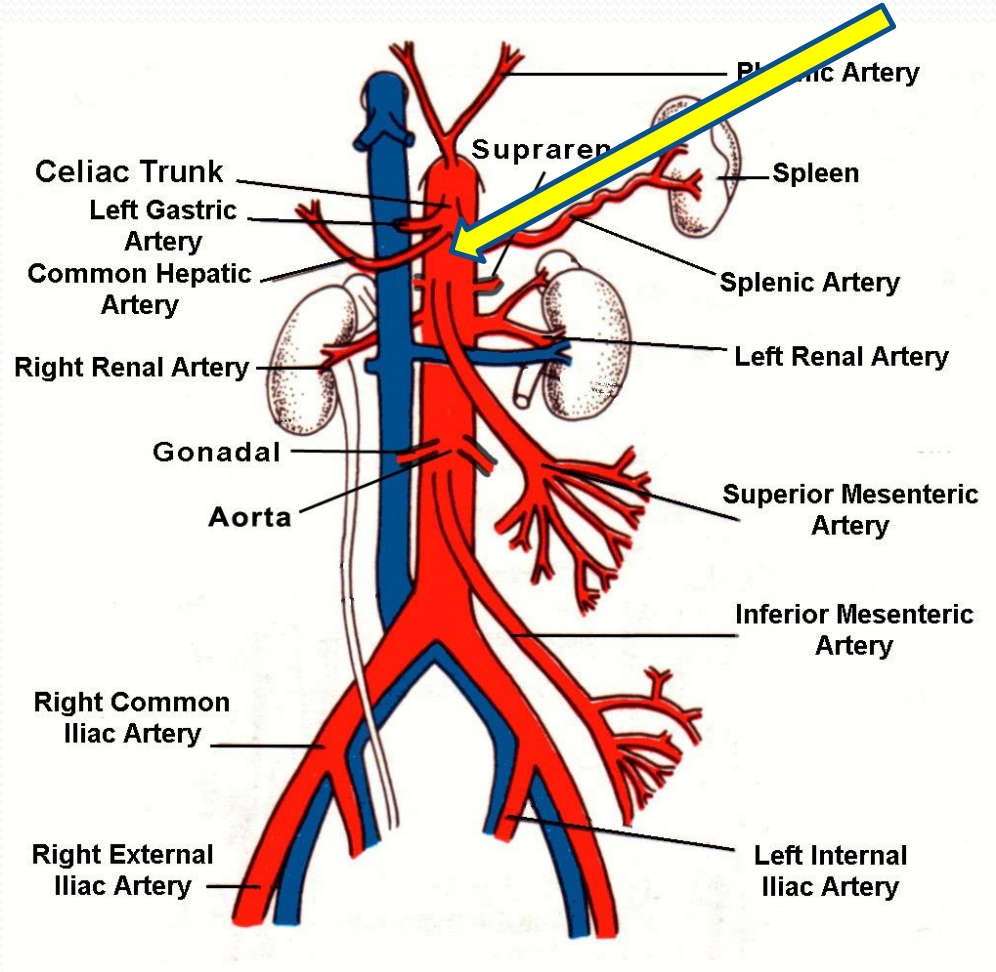
A challenge

- An hour later:
  - Now active rectal bleeding, no urine output. BP low on pressors, Hgb dropping
- So what happened?

A challenge


Phrenic Artery
Suprarenal
Celiac Trunk
Spleen
Left Gastric Artery
Common Hepatic Artery
Splenic Artery
Right Renal Artery
Left Renal Artery
Gonadal
Aorta
Superior Mesenteric Artery
Inferior Mesenteric Artery
Right Common Iliac Artery
Right External Iliac Artery
Left Internal Iliac Artery

A challenge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Superior Mesenteric Artery
Inferior Mesenteric Artery
Left Internal Iliac Artery

A challenge

- Now active rectal bleeding, no urine output. BP low on pressors, Hgb dropping
- So what happened?
  - Blood clot lodged in aorta
    - Ischemic pain to legs
    - Ischemic bowel – GI bleed and abd pain
    - Ischemic kidneys – no urine output
- Unable to use blood thinners or tPA due to bleeding
- Transferred to Children's Hospital
- Outcome?

A challenge

- The patient recovered and is doing well…
- You never can tell! Especially with kids!!